

AMENDMENTS TO THE CLAIMS

Cancel Claims 9, 10, 21 and 22 without prejudice. Please accept amended Claims 1, 4, 14, 17-19 and 23 as follows:

1. (Currently Amended) A method of tracking an object comprising:
providing a plurality of cameras;
determining an image from each camera;
determining a common plane in the images;
determining a parallax for scene points across the images;
incorporating the parallax as a feature in a background model; ~~and~~
estimating determining a change in the scene using the background model incorporating the parallax; and
tracking the object according to the change, wherein the change in the background model incorporating the parallax corresponds to the object, wherein the tracking of the object according to the change further comprising comprises,
obtaining a measure from the parallax that is invariant to motion of the object through the image, and
tracking the object relative to the invariant measure.
2. (Original) The method of claim 1, wherein at least one camera is a pan-tilt-zoom camera.

3. (Original) The method of claim 1, wherein at least one camera is uncalibrated.
4. (Currently Amended) The method of claim 2, further comprising:
providing a pan-tilt-zoom camera;
determining a mosaic for the pan-tilt-zoom camera from images captured from the pan-tilt-zoom camera; and
registering the mosaic and the images from the pan-tilt-zoom camera and the plurality of cameras according to a the common plane in the ~~scene~~ image.
5. (Original) The method of claim 2, further comprising inter-frame registration of images captured from the pan-tilt-zoom camera.
6. (Original) The method of claim 1, wherein the background model comprises a feature.
7. (Original) The method of claim 6, wherein the feature is one of an intensity and an edge.
8. (Original) The method of claim 1, further comprising determining the background model by one of a mixture-of-Gaussians and a non-parametric kernel.
- 9-10. (Cancelled)

11. (Currently Amended) The method of claim 1, further comprising providing a control strategy for controlling at least one camera of the plurality of cameras such that a probability of to view a portion of a scene estimated to include a visible portion of the object subsequent to an occlusion of the object being visible in a next image is maximized.

12. (Original) The method of claim 8, wherein an error associated with object detection and velocity is propagated to determine a maximum possible zoom at which an image of the desired region of the object may be acquired.

13. (Original) The method of claim 1, further comprising obtaining a relationship between observations from different cameras via a homography relationship for the common registered plane.

14. (Currently Amended) The method of claim 1, further comprising providing a control strategy for acquiring user defined relevant information for the object a plurality number of objects in a scene.

15. (Original) The method of claim 14, wherein providing the control strategy further comprises:

providing a probability density function for the object; and
providing a model for object motion.

16. (Original) The method of claim 14, wherein providing the control strategy further comprises providing a user specification.

17. (Currently Amended) The method of claim 16, further comprising controlling the cameras according to the user specification and the change in the ~~scene~~ background model.

18. (Currently Amended) A system for tracking an object, comprising:

- two or more cameras;
- a registration module for aligning a common plane in an image obtained from each camera;
- a parallax module for determining a parallax between views of each camera; and
- a detection module for determining motion of an object in a scene defined by the views of the cameras according to the parallax, and a predetermined background model and prior shape knowledge of the object; and

a control strategy means for controlling at least one pan-tilt-zoom camera among the two or more cameras to track the motion of the object based determined by the detection module.

19. (Currently Amended) The system of claim 18, wherein the parallax is determined between views of the two or more cameras.

20. (Original) The system of claim 18, wherein at least one camera is uncalibrated.

21-22. (Cancelled)

23. (Currently Amended) A program storage device readable by machine, tangibly embodying a program of instructions executable by the machine to perform method steps for tracking an object, the method steps comprising:

providing a plurality of cameras;

determining an image from each camera;

determining a common plane in the images;

determining a parallax for scene points across the images;

incorporating the parallax as a feature in a background model; and

~~estimating~~ determining a change in the scene using the background model incorporating the parallax; and

tracking the object according to the change, wherein the change in the background model incorporating the parallax corresponds to the object, wherein the tracking of the object according to the change further comprising comprises,

obtaining a measure from the parallax that is invariant to motion of the object through the image, and

tracking the object relative to the invariant measure.